

Application No.: 10/712,305

REMARKS

The indication of allowable subject matter in claims 1, 2, 4, 10, 12 and 14-25 is acknowledged and appreciated. In view of the following remarks, it is respectfully submitted that all claims are in condition for allowance.

Claim 3 is the sole independent claim rejected and stands rejected under 35 U.S.C. § 102 as being anticipated by Brown. This rejection is respectfully traversed for the following reasons.

Based upon the Examiner comments in the middle of page 2 of the outstanding Office Action, it appears that the Examiner misinterpreted Applicants' arguments submitted in the amendment filed on June 30, 2005. Specifically, the Examiner asserts that "Applicant has argued that Brown does not show a repolarization circuit *since the drive voltage and the bias voltage are both provided in the same direction in Brown*" (emphasis added). However, it is respectfully submitted that Applicants' arguments presented in the June 30 amendment, and restated here, are directed to the fact that Brown does not disclose or suggest the application of a polarization *recovery* voltage at all, let alone in any of the specified manners recited in claim 3. In other words, Brown does not disclose or suggest repolarization period, regardless of the relative direction of the alleged drive/bias voltage.

In this regard, at the bottom of page 2 of the Office Action dated March 31, 2005, the Examiner references elements 92, 90, 96, and 116 of Brown as reading on a position control circuit but does not reference which specific element of Brown allegedly applies the polarization recovery voltage. When imposing a rejection under 35 U.S.C. §102, the Examiner is required to point to "page and line" wherein an applied reference is perceived to identically disclose each

Application No.: 10/712,305

feature of a claimed invention. *In re Rijkkaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984).

Nonetheless, it is respectfully submitted that Brown does not disclose or suggest the step of applying a polarization recovery voltage because Brown is specifically configured to prevent depolarization so that depolarization does not take place. It follows that application of a polarization recovery voltage is not necessary in Brown. As the circuit of Brown is designed so that depolarization does not take place, it is respectfully submitted that Brown is completely unrelated to *recovering* from deterioration of polarization, let alone suggest applying a polarization recovery voltage to the piezo element. Indeed, the feedback control system of Brown is structured so that the signal output from the read transducer 34 is transmitted to the transducer position control circuit 86 while feeding back the signal output from the drive amplifier 100 to the read transducer 34. Accordingly, it is not possible, let alone suggested or necessary, to supply a polarization recovery voltage to the transducer.

It appears that the Examiner has interpreted Applicants' comments presented beginning in the last paragraph of page 12 and bridging page 13 of the June 30 response (reprinted below for Examiner's convenience) as simply arguing that Brown does not disclose application of the drive and bias voltages in different directions:

Furthermore, as expressly disclosed at col. 13, lines 55-65 and Fig. 6 (Prior Art) of Brown, applying a large voltage in a direction opposite to the poling direction of the piezo-ceramic element depolarizes the element and reduces its ability to bend or deflect. In order to drive a bimorph with a large amplitude deflection voltage without depolarizing the piezo-ceramic element, deflection voltages are applied to the piezo-ceramic elements such that the polarity of the applied voltage is always in the poling direction of the element to which it is applied so that a large degree of deflection of the bimorph can be effected without depolarizing the piezo-ceramic elements (i.e., 160/162 of Fig. 8a) (see, col. 14, lines 6-12). For instance, by supplying a DC voltage having a magnitude equal to

Application No.: 10/712,305

$\frac{1}{2} V_{\max}$ (i.e., $\frac{1}{2}$ of the peak to peak amplitude of the largest deflection signal) from the source 174 to the piezo-ceramic element 160 in its poling direction and from the source 176 to the piezo-ceramic element 162 in its poling direction, the piezo-ceramic elements 160/162 are oppositely biased to $\frac{1}{2} V_{\max}$ so as to prevent the deflection of the bimorph 158.

In contrast, in accordance with one exemplary embodiment of the present invention, position control is conducted by supplying a voltage to the reverse direction with respect to the poling direction of the piezoelectric element. Once the deterioration of polarization has taken place, a polarization recovery voltage is superposed and applied on the position control voltage, applied by changing over with the position control voltage in a film thickness direction of the piezoelectric element or applied in a film thickness direction of the piezoelectric element. As a result, the piezoelectric element is recovered from the deterioration of polarization while the piezoelectric actuator is being assembled in the disk apparatus.

However, the above line of argumentation was simply referencing the disclosed operation and purpose of Brown to evidence why Brown does not suggest applying polarization *recovery* voltage in any way; namely, because the system of Brown is designed to prevent depolarization whereby polarization recovery is not necessary.

As shown in Figures 7-10 of Brown, methods of not applying voltage in an inverse direction to the poling direction, in which the bias voltage values of $V_{\max}/2$ and $-V_{\max}/2$ are utilized as a basis (Figure 8b of Brown), are disclosed as a means to prevent depolarization. In this regard, it is respectfully submitted that the Examiner's allegation (bottom of page 2 of the outstanding Office Action) that "although Brown does not refer to his DC bias with the term repolarization voltage this is exactly its actual function," is technically inaccurate. Contrary to the Examiner's assertion, Brown does not refer to the bias voltage as repolarization voltage because the applied bias is NOT a polarization recovery voltage but rather is used as part of a depolarization prevention technique.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by

Application No.: 10/712,305

probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Brown does not anticipate claim 3, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 3 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 102/103 be withdrawn.

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

Application No.: 10/712,305

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY, LLP



Ramyar M. Farid
Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 RMF:MWE
Facsimile: 202.756.8087
Date: November 1, 2005

**Please recognize our Customer No. 20277
as our correspondence address.**